We claim:

1. A method for establishing an Internet Protocol (IP)-based Virtual Private Network (VPN) for voice data, comprising the steps of:

(a) determining the relative location of a terminating point with respect to an originating point of a new communication containing the voice data;

(b) determining one or more IP addresses to egress the communication from the originating point to the terminating point;

(c) creating a VPN identifier in the voice data;

(d) passing the new communication to the terminating point; and

(e) removing the VPN identifier from the voice data.

2. The method of claim 1 wherein the VPN identifier is an extra field added to an encapsulation coding scheme of the voice data.

3. The method of claim 2 wherein the VPN identifier is an MPLS label.

4. The method of claim 1 wherein the VPN identifier is a VPN identifier as specified in IETF RFC.2685.

5. The method of claims 3 wherein the VPN identifier is a identifies a location selected from the group consisting of the originating point, terminating point or an intermediate location therebetween.

6. The method of claim 1 wherein step (a) further comprises collecting and analyzing dialed digits of the terminating point to determine whether PSTN gateway or inter-VPN gateway functions process the new communication.

7. The method of claim 1 wherein IP address space of the originating point is from a subscriber's IP address space.

8. The method of claim 1 wherein IP address of the terminating point is from a subscriber's IP address space.

9. The method of claim 6 wherein the PSTN gateway function further comprising assigning an IP address from a subscriber's IP address space to represent a phone from a PSTN.

10. The method of claim 6 wherein the inter-VPN gateway function further comprises assigning an IP address from IP address space of the terminating point to represent the originating point, when communicating with the terminating point.

11. The method of claim 6 wherein the inter-VPN gateway function further comprises assigning an IP address from IP address space of the originating point to represent the terminating point, when communicating with the origination point.

12. The method of claim 10 wherein the inter-VPN gateway function translates the IP address of the originating point to the assigned IP address when forwarding voice data to the terminating point.

13. The method of claim 11 wherein the the inter-VPN gateway function translates the IP address of the terminating point to the assigned IP address when forwarding voice data to the originating point.

14. The method of claim 6 wherein the dialed digits are a private number from the subscriber's own private numbering scheme.

15. The method of claim 6 wherein the dialed digits are a public telephone number.

16. An apparatus for IP-based VPN communications comprising:

at least one soft-switch which processes call signaling messages from subscribers;

at least one packet switch having an interface to said at least one soft-switch, said packet switch having a VPN processing module for establishing voice calls on a selection of originating and terminating IP addresses passed to the at least one soft-switch and at least one packet switch.

17. The apparatus of claim 16 wherein said at least one soft-switch is an ingress soft-switch and an egress soft-switch.

18. The apparatus of claim 16 wherein said at least one packet switch is an ingress packet switch and an egress packet switch.

19. The apparatus of claim 16 wherein the soft-switch instructs the packet switch to perform call establishing functions selected from the group consisting of:

creating call terminations and contexts;
attaching said call terminations to said context;
cross-connecting call terminations in a context;
inserting and removing VPN identifiers; and
mapping call terminations to connections.